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PROBLEM STATEMENT NO:
DATE OF RECEIPT:

Montana Department of Transportation

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STAGE I RESEARCH PROBLEM STATEMENT

I. **PROBLEM TITLE (required):** Pile Static Load Test

II. **PROBLEM STATEMENT (required):**

In recent years MDT has been using Pile Driving Analyzer (PDA) tests to estimate the capacity of piles during driving and for determining the acceptability of the final tip elevation. The Department needs to verify the estimated capacity against the actual capacity of the piles with a Static Load Test. Results on several recent projects have been questionable and this testing will increase the PDA testing's reliability.

III. RESEARCH PROPOSED (required):

Conduct Static Load Testing on piles driven into representative soil and rock conditions found in Montana and compare the results to the PDA tests performed during driving. Testing can be performed on MDT bridge projects using production piles or as a stand alone project.

IV. IT COMPONENT (required): Identify if the project includes an IT component (purchasing of IT hardware, development of databases, acquisition of existing applications, etc) or not. If so, describe IT component in as much detail as possible.

No IT components.

CONTINUED ON BACK

V. URGENCY AND EXPECTED BENEFITS (required):

MDT uses PDA tests during pile driving to estimate pile capacity and determine final pile tip elevations and acceptance. Some research has shown that the PDA testing may be inaccurate in some hard driving conditions that are common in Montana. Several recent MDT projects have encountered PDA test data that raised questions concerning the test data accuracy. These projects had low pile capacity estimates that required continued pile driving. Performing a Static Pile Test in these conditions would give us actual capacities to correlate against. Evaluation of this data could help prevent over conservative pile lengths and save pile driving costs in similar driving conditions on a statewide basis.

VI. IMPLEMENTATION PLAN (required):

Immediately after completion, the information can be used as a basis for evaluating PDA test results. The information will also be evaluated to see if MDT's design methodology can be improved.

VII. SUBMITTED BY: (required)

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VIII. CHAMPION: (Must be internal to MDT)

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IX. SPONSOR(S): (Internal to MDT, Division Administrator or higher)

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Note: Submitter may attach continuation sheets if necessary.